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## THE RELATION OF FARM MANAGEMENT AND MARKETING TO ECONOMICS.

G. F. WARREN.

With the growing interest in farm management, marketing, and other subjects of a similar nature, the organization of these subjects is attracting attention. The history of the development of other fields is of interest.

In the beginning, civil engineering was often taught by a professor of mathematics, and electrical engineering by a professor of physics. Other persons entered these fields who were primarily engineers rather than mathematicians or physicists. As the development proceeded these subjects have come to stand alone, using mathematics, chemistry, physics, botany, and any other subjects that would be of service in the development of the science of engineering.

Similarly agronomy, horticulture, and forestry were sometimes included under the terms agricultural botany, forest botany, and the like. At the same time, persons entered these fields who were not primarily botanists. Later each of these subjects came to stand alone and began to have, not the point of view of botany, but the point of view of crop production. Botany, chemistry, mathematics, and a great variety of other subjects were called on and used as tools in the development of the new sciences.

At one time agricultural chemistry included discussions of milk tests, spray materials, fertilizers, feeds, and the like. As new fields of study developed agricultural chemistry ceased to be a well-defined subject. The name will doubtless disappear. This does not mean less chemistry. It means much more chemistry, not merely in chemistry departments, but also means that chemistry is pervading almost every field and is used in many subjects the point of view of which is not primarily chemical, such as soils, plant breeding, pomology, dairy industry, animal nutrition, and the like. No one of these subjects can progress far without chemistry, but neither can any of them go far if limited to chemistry.

Some institutions now have departments of home economics. Had the same work begun a generation ago, it is likely that it would have been called home chemistry. It can not be limited to either chemistry or economics if it is to progress as it should.

No applied subject can be confined to the limits of any one ele-

mental science. In fact, progress in a so-called fundamental science is largely dependent on the use of other sciences. In the beginning, men usually enter the applied field from different elemental subjects and often attempt to limit the new subject to that one field. Other men enter from more general fields and are likely to minimize the importance of the underlying science that is most used. Chemists who became professors of soils tended to minimize the geological, meteorological, bacteriological, and economic aspects of the subject. Others who were not well trained in chemistry tended to minimize the value of chemistry. Not until the subject came to stand alone, using whatever science would be of service, was the greatest progress made.

Medicine is not zoölogy, although it deals with zoölogical specimens. If it were called human zoölogy, its development would be greatly limited. It is an independent subject with a new aim—not the aim of zoölogy. It should be free to use every science and art to help in its development.

Judging by the illustrations given above, it seems logical that in time the term agricultural economics will disappear. This will not mean less economics. It means that farm management, marketing, and similar subjects will use economics, mathematics, and other subjects in the development of the work.

At present the work is being given under various names in different institutions. The name often influences the character of the work given. Whatever the names used, the relative importance of various phases of work should be kept in mind. For those who desire to farm a knowledge of farm management is needed, just as a knowledge of soils is necessary, and as a knowledge of the principles of feeding is necessary for those who plan to raise live stock. In the judgment of the writer a good understanding of the principles of farm management also is necessary before one is ready to discuss public problems of agricultural economics. Similarly a fundamental study of the processes of marketing is needed by those who are to go into marketing work, and is a necessary prerequisite for those who are interested in improvements in the methods of distribution as a public question.

In all this work the writer believes that the agricultural colleges should follow the method of botany, chemistry, and physics in laboratory study of cases. A thorough study of one plant cell should precede any generalization about plant cells. So thorough study of one farm business should precede generalization about farming. Generalizations may later be made, rather than spend time on abstract principles when no single case is thoroughly understood in all its details.